WHAT IS CLAIMED IS:

1. A method of transmitting data signals from at least two transmitting terminals with each at least one transmitting means to at least one receiving terminal with a spatial diversity receiving means comprising:

transmitting from the transmitting terminals transformed data signals, being transformed versions of the data signals;

receiving on the spatial diversity means received data signals being at least function of at least two of the transformed data signals;

subband processing of at least two of the received data signals in the receiving terminal; and

determining estimates of the data signals from subband processed received data signals in the receiving terminal.

2. The method of Claim 1, wherein the transmitting is substantially simultaneous.

3. The method of Claim 1, wherein the spectra of the transformed data signals are at least partly overlapping.

4. The method of Claim 1, wherein determining the estimates of the data signals in the receiving terminal is determined on a subband by subband basis.

5. The method of Claim 1, wherein determining the estimates of the data signals from subband processed received data signals in the receiving terminal further comprises for at least one data signal:

selecting from the data signals a selected data signal;

determining an estimate of the selected data signal from the subband processed received data signals;

modifying the subband processed received data signals based on the estimate of the selected data signal; and

determining estimates of the remaining data signals from the modified subband processed received data signals.

6. The method of Claim 5, wherein selecting a data signal is based on the receiving power of the data signals.

7. The method of Claim 5, wherein selecting a data signal is based on the interference ratio of the data signals.

8. The method of Claim 1, wherein determining the estimates of the data signals from subband processed received data signals in the receiving terminal further comprises for at least one data signal:

selecting from the data signals a selected data signal;

determining a plurality of estimates of the selected data signal from the subband processed received data signals;

determining a plurality of modified subband processed received data signals, each of the modified subband processed received data signals being based on one of the estimates of the selected data signal;

determining a plurality of estimates of at least one of the remaining data signals from the plurality of modified subband processed received data signals; and

thereafter selecting one of the estimates of the selected data signal.

9. The method of Claim 8, wherein selecting a data signal is based on the interference ratio of the data signals.

10. The method of Claim 1, wherein the subbands, being involved in the subband processing, are grouped into sets, at least one set comprising at least two subbands; and wherein determining the estimates of the data signals in the receiving terminal comprises:

determining relations between the data signals and subband processed received data signals on a set-by-set basis; and

exploiting the relations between the data signals and the subband processed received data signals for determining the data signals.

11. The method of Claim 1, wherein the transformation of the data signals to transformed data signals comprises inverse subband processing.

12. The method of Claim 1, wherein determining estimates of the data signals from subband processed received data signals in the receiving terminal comprises:

determining intermediate estimates of the data signals from the subband processed received data signals in the receiving terminal; and

obtaining the estimates of the data signals by inverse subband processing the intermediate estimates.

13. The method of Claim 1, wherein the transformation of the data signals to transmitted data signals further comprises guard interval introduction.

14. The method of Claim 1, wherein the subband processing comprises orthogonal frequency division demultiplexing.

15. The method of Claims 11 or 12, wherein the inverse subband processing comprises orthogonal frequency division multiplexing.

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16. The method of Claim 1, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

17. A method of transmitting data signals from at least one transmitting terminal with a spatial diversity transmitting means to at least two receiving terminals with at least one receiving means comprising:

determining combined data signals in the transmitting terminal, the combined data signals being transformed versions of the data signals;

inverse subband processing the combined data signals;

transmitting with the spatial diversity means inverse subband processed combined data signals;

receiving on at least one of the receiving means of at least one of the receiving terminals inverse subband processed received data signals, being at least function of the inverse subband processed combined data signals; and

determining estimates of the data signals from the inverse subband processed received data signals.

18. The method of Claim 17, wherein the transmitting of inverse subband processed combined data signals is substantially simultaneous.

19. The method of Claim 17, wherein the spectra of the inverse subband processed combined data signals are at least partly overlapping.

20. The method of Claim 17, wherein determining combined data signals in the transmitting terminal is determined on a subband by subband basis.

21. The method of Claim 17, wherein determining the estimates of the data signals in the receiving terminals comprises subband processing.

22. The method of Claim 17, wherein determining combined data signals in the transmitting terminal comprises:

determining intermediate combined data signals by subband processing the data signals; and

determining the combined data signals from the intermediate combined data signals.

23. The method of Claims 21 or 22, wherein the subband processing is orthogonal frequency division demultiplexing.

24. The method of Claim 17, wherein the inverse subband processing is orthogonal frequency division multiplexing.

25. The method of Claim 17, wherein the subbands, being involved in inverse subband processing, are grouped into sets, at least one set comprising at least two subbands; and wherein determining combined data signals in the transmitting terminal comprises:

determining relations between the data signals and the combined data signals on a set-by-set basis; and

exploiting the relations between the data signals and the combined data signals for determining the data signals.

26. The method of Claim 17, wherein in the inverse subband processed combined data signals a guard interval is introduced.

27. The method of Claim 17, wherein the determining of combined data signals is essentially based on the distinct spatial signatures of the transmitted inverse subband processed combined data signals.

28. An apparatus for determining estimates of data signals from at least two received data signals, the received data signals, the apparatus comprising:

at least one spatial diversity receiving means;

circuitry being arranged for receiving the received data signals with the spatial diversity receiving means;

circuitry being arranged for subband processing at least two of the received data signals; and

circuitry being arranged for determining estimates of the data signals from subband processed received data signals.

29. The apparatus of Claim 28 wherein the circuitry is arranged for determining estimates of the data signals from subband processed received data signals and comprises a plurality of circuits each being arranged for determining part of the estimates of the data signals based on part of the subbands of the subband processed received data signals.

30. The apparatus of Claim 28, wherein the spatial diversity means comprises at least two receiving means and the circuitry is arranged for receiving the received data signals with the spatial diversity means and comprises a plurality of circuits each being arranged for receiving the received data signals from one of the receiving means of the spatial diversity means.

31. The apparatus of Claim 28, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

32. The apparatus of Claim 28, wherein the determining of the estimates of the data signals is on a subband by subband basis.

33. An apparatus for transmitting inverse subband processed combined data signals comprising:

at least one spatial diversity transmitting means;

circuitry being arranged for combining data signals;

circuitry being arranged for inverse subband processing combined data signals; and

circuitry being arranged for transmitting inverse subband processed combined data signals with the spatial diversity means.

34. The apparatus of Claim 33, wherein the circuitry being adapted for combining data signals comprising a plurality of circuits each being adapted for combining data signals based on part of the subbands of the data signals.

35. The apparatus of Claim 33, wherein the spatial diversity transmitting means comprises at least two transmitting means and the circuitry being adapted for

transmitting inverse subband processed combined data signals comprises a plurality of circuits each being adapted for transmitting the inverse subband processed combined data signals with one of the transmitting means of the spatial diversity means.

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36. The apparatus of Claim 33, wherein the spectra of the inverse subband processed combined data signals are at least partly overlapping.

37. The apparatus of Claim 33, wherein the combining of data signals being essentially based on the distinct spatial signatures of the transmitted inverse subband processed combined data signals.

38. The apparatus of Claim 33, wherein determining combined data signals are on a subband by subband basis.

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